Paracrine regulation of normal and malignant hematopoiesis.

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Public Summary:

Scientific Abstract:
PURPOSE OF REVIEW: The paradigm of niche-regulation of hematopoiesis has rapidly and substantially evolved within the last 12 months. Here, we will review the most critical advances in understanding of paracrine regulation of normal and malignant hematopoietic stem cell fate during the past year. RECENT FINDINGS: Several novel paracrine mechanisms have been recently identified, highlighting the function of mesenchymal progenitor cells, osteoprogenitor cells and endothelial cells in regulating hematopoietic stem cell maintenance and regeneration. Similarly, niche-driven inflammatory states, paracrine mechanisms, exosomes, and endocytosis have each been shown to powerfully regulate the maintenance and propagation of leukemic cells. SUMMARY: The elucidation of paracrine mechanisms that regulate normal and malignant hematopoiesis is critical for both fundamental understanding of hematology and for the identification of novel molecular targets for therapeutic translation.